Amendments to the Drawings

The attached sheet of drawings include changes to sheet 1, Figure 1B.

Attachment: Replacement sheet 1 and Figure 1B.
Annotated sheet 1 and Figure 1B.

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REMARKS

The specification and claims were objected to for repeated smudges. Applicant requests reconsideration. Apparently, the scanning process at the PTO was defective. Applicant provides herewith a correct copy as filed and as a substitute specification, as desired.

Claims 1, 2, 4, and 5 were rejected as anticipated by Briseno, published 8/11/03. Claims 1, 2, 4, and 5 were rejected as anticipated by Pinto published 11-17-03. Claims 1, 2, 4, and 5 were rejected as anticipated by Yun published 8/3/03. Claims 1, 2, 4-8 were rejected as anticipated by Liu published 2/3/03. Applicant requests reconsideration. Applicant published in the open literature a description of the invention on 12/13/02 in advance of filing the present application on 12/11/03 in J. AM. CHEM. SOC. 2003, 125, 314-315, and hence, applicant swears behind these cited references.

Claim 3 was allowed but objected to as depending on a rejected base claim. Applicant requests reconsideration. New Claim 11 includes the limitations of Claims 1 and 3. Claim 1 was amended to include the limitation that the nanofibers consist of a single polymer. New Claim 12 recites that the diameter of the fibers is less than 500 nm.

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Claims 1, 2, 4-10 were rejected as unpatentable over Ko in view of Shiell. Claims 1, 2, and 4-10 were rejected as unpatentable over Lin in view of Marsoner. Applicant requests reconsideration.

The present specification teaches an interfacial process leading to the creation of small diameter, less than 500 nm, nanofibers consisting of single polymer that can be polyaniline in the preferred form. Ko does not teach a method of producing nanofibers having small diameters and consisting of single polymer. Ko teaches a process of creating a blend of polymer microfibers in the ≥ 960 nm range with very long lengths consistent with the electro-spinning process. Lin can produce 500 nm diameter nanofibers using an electrochemical process but cannot grow the nanofibers on the gaps between the conducting terminals. The counter electrode configuration of Lin and Marsoner will only work in solution and therefore is limited in application to solution sensing. Neither Ko nor Lin teach a process of producing small diameter nanofibers consisting of a single polymer and disposed as a film that bridges the gaps between conducting terminals. The processes of Ko and Lin, nor any combination of them, cannot be used to form the claimed sensor.

The examination states, respecting Ko, that "Varying these parameters to arrive at a film having these fiber properties would have required only routine skill in the art." This is incorrect. There is no information provided on how the Ko or Lin process could be changed nor are there any parameter variations that could be selected through this so-called routine skill. That is, there are

no possible parameter variations known that could be used by anyone skilled in the art using the Ko or Lin processes to arrive at the claimed single polymer nanofiber sensor.

By contradistinction, the Ko process is a blend process preferably using a 2% by weight blend of polyaniline polymers in the electro-spinning process to create large and very long microfibers. There are no teachings in Ko on how to make nanofibers from a single polymer suitable for disposition on electrodes of a sensor. Ko teaches making ≥ 960 nm microfibers from a blend of polymers in an electro-spinning process. Ko may obtain 10 micron sized polyaniline fibers, but there is no indication that such would be suitable for a sensor, the discovery of the present invention. Neither Lin nor Mosner teach a process of making a film bridging the gaps between the electrodes. There is certainly no suggestion in Ko or Lin or Mosner on how to change their explicit processes, contrary to their teachings, for generating the claimed sensor having nanofibers of a single polymer disposed over gaps between the electrodes.

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The cited references do not teach a sensor made of nanofibers consisting of a single polymer and disposed between electrodes, nor any suitable method of making the polyaniline nanofibers in a sensor. Applicant requests allowance of all the claims.

Respectfully Submitted

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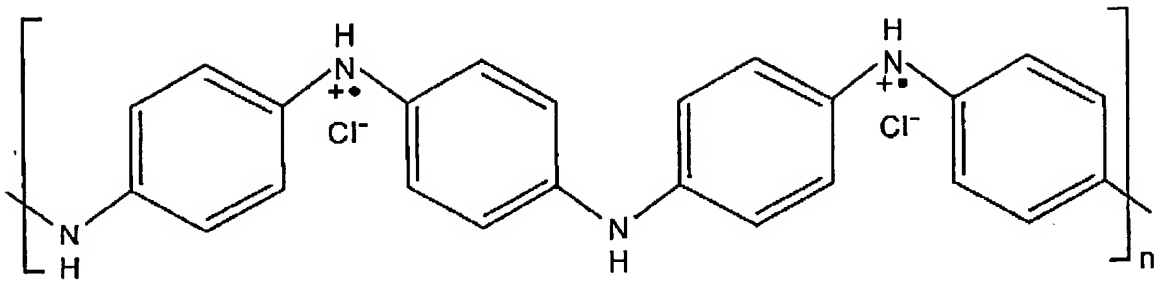
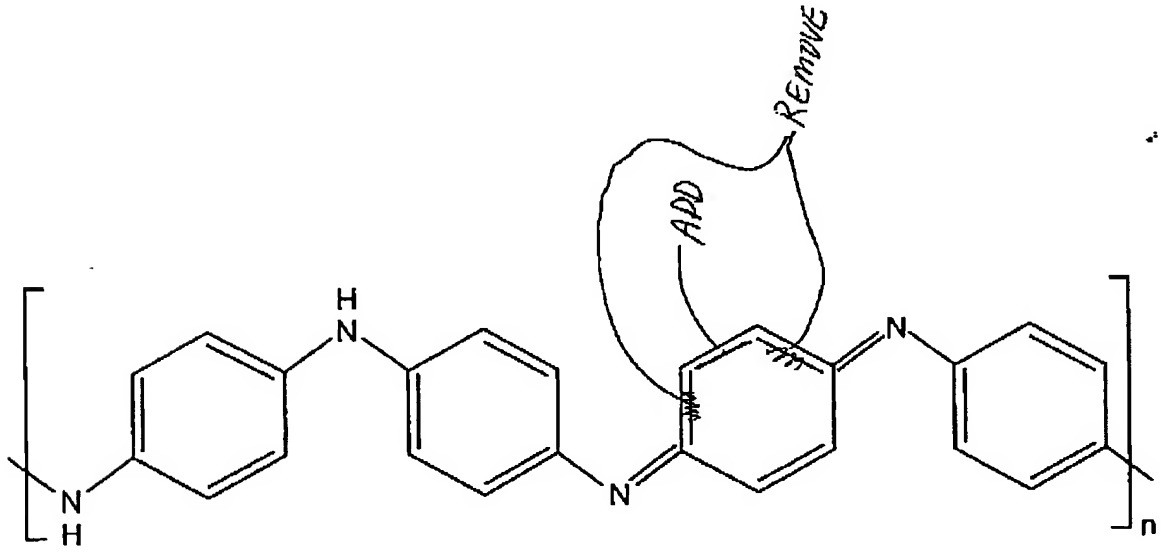
ANNOTATED SHEET



DOPED POLYANILINE EMERALDINE SALT (σ = 10 S/cm)

FIG. 1A



DEDOPED POLYANILINE EMERALDINE BASE ($\sigma = 1 \times 10^{-10}$ S/cm)

FIG. 1B